UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,912	04/12/2004	Daiji Ishii	Y0647.0149	2429

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EXAMINER
WONG, LINDA

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/821,912	ISHII, DAIJI
	Examiner	Art Unit	
	Linda Wong	2611	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>12 April 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-9</u> is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-9</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>12 April 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a)☐ All   b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)   4) ☐ Interview Summary (PTO-413)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)   Paper No(s)/Mail Date. _____ .
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)   5) ☐ Notice of Informal Patent Application
   Paper No(s)/Mail Date _____ .   6) ☐ Other: _____ .

DETAILED ACTION

Priority

1.   Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which

papers have been placed of record in the file.

Information Disclosure Statement

2.   The information disclosure statement (IDS) submitted on 4/12/2004 and 12/5/2005.

The information disclosure statement has been considered by the examiner.

Drawings

3.   The drawings were received on 4/12/2004. These drawings are accepted.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of
> making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the
> art to which it pertains, or with which it is most nearly connected, to make and use the same and shall
> set forth the best mode contemplated by the inventor of carrying out his invention.

4.   **Claim 6** is rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure,

which is not enabling. Buffering or storing the output of the adder is critical or

essential to the practice of the invention, but not included in the claim(s) is not

enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356

(CCPA 1976). Page 6, lines 9-18, the motivation of the applicant's invention is as

stated

"The conventional rake reception apparatus described above can obtain one reception data upon eliminating the time differences between the reception signals separately received through a plurality of paths. As described above, however, in the above conventional rake reception apparatus, since **the total number of data that must be held** to adjust the timings of the data is given by D = F x W/S, the **total capacity of the buffers** undesirably increases as the number F of fingers increases.
<u>Summary of the Invention</u>
The present invention has been made to solve the above problem in the prior art, and has as its **object to reduce the total capacity of a buffer which is required to adjust the timings of data.** "

Based on the motivation, the buffer storing the output from the adder is essential to

the applicant's invention.

1st Prior Art Rejection

<u>References</u>: PCT No.: WO 02056493, translation US Publication No.: 20030176171,

Applicant's Background (pages 1-6)

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5.   **Claims 1-4,6-8** are rejected under 35 U.S.C. 102(a) as being anticipated by Sato et

al (PCT No.: WO 02056493, translation US Publication No.: 20030176171).

a.   **Claim 1**,

i.   Sato et al

- "a plurality of finger receivers which de-spread reception signals on a path basis" (Fig. 3, label 32a-d, paragraphs 4 and 66)

- "a switch which sequentially selects de-spread data one by one on a path basis which are output from said plurality of finger receivers" (Fig. 3, label 40, paragraph 69)

- "an adder which adds the data selected by said switch to a rake combining interim result corresponding to the data and outputs the result as a rake combining interim result after updating" (Fig. 3, labels 40,42 and output from 42, paragraphs 69,71)

- "a buffer which holds the rake combining interim result output from said adder and outputs a rake combining interim result corresponding to data selected by said switch to said adder" (Fig. 3, label 44, paragraphs 71,72)

b. **Claim 2,** Sato et al discloses "buffer outputs, as a rake combining result, a rake combining interim result after addition of data from all paths which are to be rake-combined" (Fig. 3, output from label 44)

c. **Claim 3,** Sato et al discloses

- "a plurality of registers which respectively hold de-spread data on a path basis which are output from said finger receivers" (Fig. 3, labels 38a-d, paragraph 67)

- "said switch sequentially selects the data held in said plurality of registers" (Fig. 3, label 40, paragraph 69)

d. **Claim 4**, Sato et al discloses "said switch sequentially selects the data held in

said plurality of registers at intervals of cycles equal in number to a sum

obtained by adding one to the number of fingers which is equal in number to

said finger receivers" (paragraph 100 discloses setting priorities to the FIFO or

registers. A request is made to FIFO 1 (label 38a), the priority for the finger is

set to low and the next FIFO device, FIFO 2 (label 38b) is set to the highest

priority. Paragraph 85 discloses the control circuit 46 controls processing

based on the priority order. The control circuit controls the selection process as

described in paragraph 78.)

e. **Claim 6**,

   i.   Sato et al discloses

      *   "the step of de-spreading reception signals on a path basis" (Fig. 3,

          label 32a-d, paragraphs 4 and 66)

      *   "the step of sequentially selecting de-spread data one by one on a path

          basis" (Fig. 3, label 40, paragraph 69); and

      *   "the step of adding selected data to a rake combining interim result

          corresponding to the data, and outputting the result as a rake

          combining interim result" (Fig. 3, labels 40,42 and output from 42,

          paragraphs 69,71)

f. **Claim 7**, Sato et al discloses "the step of outputting, as a rake combining result,

   a rake combining interim result after addition of data from all paths which are to

   be rake-combined". (Fig. 3, output from label 44)

g. **Claim 8**, Sato et al discloses "the step of holding de-spread data on a path

basis" (Fig. 3, labels 38a-d, paragraph 67) and "the step of sequentially

selecting includes the step of sequentially selecting the held data". (Fig. 3, label

40, paragraph 69)

h. **Claim 9**,

   i. Sato et al discloses

   • "the step of de-spreading includes the step of de-spreading reception

     signals on a path basis by using a plurality of finger receivers" (Fig. 3,

     label 32a-d, paragraphs 4 and 66) and

   • "the step of sequentially selecting includes the step of sequentially

     selecting the held data at intervals of cycles equal in number to a sum

     obtained by adding one to the number of fingers which is equal in

     number to said finger receivers." (paragraph 100 discloses setting

     priorities to the FIFO or registers. A request is made to FIFO 1 (label

     38a), the priority for the finger is set to low and the next FIFO device,

     FIFO 2 (label 38b) is set to the highest priority. Paragraph 85 discloses

     the control circuit 46 controls processing based on the priority order.

     The control circuit controls the selection process as described in

     paragraph 78.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al as

    applied to claim 1, in view of Applicant's Background (pages 1-6).

    a. **Claim 5**,

        i.   Sato et al discloses one buffer used to store the output of the adder (Fig. 3,

             label 44), but fails to disclose "said buffer holds rake combining interim

             results equal in number to a quotient obtained by dividing a maximum time

             difference between arrival timings of data through paths by one data

             interval".

        ii. The applicant's background discloses the total amount of data held by the

             buffers is $D = F \times W/S$, wherein F is the number of buffers, W is the

             maximum time difference between the arrival timings of data through path 1

             and path 3 and S is one data interval (second). Since Sato et al only

             discloses 1 buffer, the total amount of data according to the applicant's

             background would be $D = 1 \times W/S = W/S$. It would have been obvious to

             one skilled in the art at the time of the invention to incorporate such

             calculation of the amount of data stored in the buffer as disclosed in the

             applicant's background into Sato et al's invention so to effectively determine

             the amount of data stored in the buffer.

2nd *Prior Art Rejection*

References: Eo et al (US Patent No.: 7012951), Maruyama (US Publication No.:

20020176393), Applicant's Background (pages 1-6)

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. **Claims 1-2,4,6-7** are rejected under 35 U.S.C. 102(e) as being anticipated by Eo et

al (US Patent No.: 7012951).

a. **Claim 1**,

i. Eo et al

- "a plurality of finger receivers which de-spread reception signals on a

path basis" (Fig. 3, label sym_fn1-sym_fn3, from fingers, Col. 5, lines

29-31)

- "a switch which sequentially selects de-spread data one by one on a

path basis which are output from said plurality of finger receivers" (Fig.

3, sym_fn1-sym_fn3 are inputted to selector, Col. 5, lines 45-58)

- "an adder which adds the data selected by said switch to a rake
  combining interim result corresponding to the data and outputs the
  result as a rake combining interim result after updating" (Fig. 3, label (2)
  or output from selector to adder, Col. 5, lines 16-19)

- "a buffer which holds the rake combining interim result output from said
  adder and outputs a rake combining interim result corresponding to
  data selected by said switch to said adder" (Fig. 3, label (1), Col. 5,
  lines 15-19)

b. **Claim 2**, Eo et al discloses "buffer outputs, as a rake combining result, a rake
combining interim result after addition of data from all paths which are to be
rake-combined" (Fig. 3, label combined symbol and output is controlled by
rd_point outputted by the control logics)

c. **Claim 4**, Eo et al discloses "said switch sequentially selects the data held in
said plurality of registers at intervals of cycles equal in number to a sum
obtained by adding one to the number of fingers which is equal in number to
said finger receivers" (Fig. 5 shows determining ith finger is ready or equal to 1.
The symbol of the ith finger is selected. When the next finger is ready, the
matching symbol is selected. (Col. 6, lines 55-65) The next finger can be i+1 or
i+2, depending on the output from the fingers as shown in Fig. 5.)

d. **Claim 6**,

  i.   Eo et al I discloses

- "the step of de-spreading reception signals on a path basis" (Fig. 3, label sym_fn1-sym_fn3, from fingers, Col. 5, lines 29-31)

- "the step of sequentially selecting de-spread data one by one on a path basis" (Fig. 3, sym_fn1-sym_fn3 are inputted to selector, Col. 5, lines 45-58); and

- "the step of adding selected data to a rake combining interim result corresponding to the data, and outputting the result as a rake combining interim result" (Fig. 3, label (2) or output from selector to adder, Col. 5, lines 16-19)

e. **Claim 7**, Eo et al discloses "the step of outputting, as a rake combining result, a rake combining interim result after addition of data from all paths which are to be rake-combined". (Fig. 3, label combined symbol and output is controlled by rd_point outputted by the control logics)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. **Claims 3,8,9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Eo et al as applied to claims 1,6, respectively, in view of Maruyama (US Publication No.: 20020176393).

a. **Claim 3,**

    i.   Eo et al fails to disclose

- "a plurality of registers which respectively hold de-spread data on a path basis which are output from said finger receivers"

- "said switch sequentially selects the data held in said plurality of registers"

    ii.   Maruyama discloses such limitations. (Fig. 8, labels 501-50n registers for storing input data, label 51 shows a selector for selecting outputs from the register) It would have been obvious to one skilled in the art at the time of the invention to incorporate storing despread or demodulated signals or input data as disclosed by Maruyama into Eo et al's invention so to reduce consumption. (paragraph 94)

b. **Claim 8,**

    i.   Eo et al discloses "the step of sequentially selecting includes the step of sequentially selecting" data. (Fig. 5 shows determining ith finger is ready or equal to 1. The symbol of the ith finger is selected. When the next finger is ready, the matching symbol is selected. (Col. 6, lines 55-65) The next finger can be i+1 or i+2, depending on the output from the fingers as shown in Fig. 5.)

    ii.   Eo et al fails to disclose

- "the step of holding de-spread data on a path basis" and "selecting the held data".

    iii.   Maruyama discloses such limitations. (Fig. 8, labels 501-50n registers for storing input data, label 51 shows a selector for selecting outputs from the register) It would have been obvious to one skilled in the art at the time of the invention to incorporate storing despread or demodulated signals or input data as disclosed by Maruyama into Eo et al's invention so to reduce consumption. (paragraph 94)

c. **Claim 9,**

    i.   Eo et al discloses

- "the step of de-spreading includes the step of de-spreading reception signals on a path basis by using a plurality of finger receivers" (Fig. 3, label sym_fn1-sym_fn3, from fingers, Col. 5, lines 29-31) and

- "the step of sequentially selecting includes the step of sequentially selecting the held data at intervals of cycles equal in number to a sum obtained by adding one to the number of fingers which is equal in number to said finger receivers." (Fig. 5 shows determining ith finger is ready or equal to 1. The symbol of the ith finger is selected. When the next finger is ready, the matching symbol is selected. (Col. 6, lines 55-65) The next finger can be i+1 or i+2, depending on the output from the fingers as shown in Fig. 5.)

9. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Eo et al as applied to claim 1, in view of Applicant's Background (pages 1-6).

a. **Claim 5,**

    i. Eo et al discloses one buffer used to store the output of the adder (Fig. 3, label (1)), but fails to disclose "said buffer holds rake combining interim results equal in number to a quotient obtained by dividing a maximum time difference between arrival timings of data through paths by one data interval".

    ii. The applicant's background discloses the total amount of data held by the buffers is $D = F \times W/S$, wherein F is the number of buffers, W is the maximum time difference between the arrival timings of data through path 1 and path 3 and S is one data interval (second). Since Eo et al only discloses 1 buffer, the total amount of data according to the applicant's background would be $D = 1 \times W/S = W/S$. It would have been obvious to one skilled in the art at the time of the invention to incorporate such calculation of the amount of data stored in the buffer as disclosed in the applicant's background into Sato et al's invention so to effectively determine the amount of data stored in the buffer.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Segal et al (US Patent No.: 6859434)

b. Medlock et al (US Patent No.: 7065128)

c.   Maruyama (US

d.   Aldridge et al (US Publication No.: 20040013173).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linda Wong whose telephone number is 571-272-6044. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Linda Wong
4/26/2007

JAY K. PATEL
SUPERVISORY PATENT EXAMINER